

## CLAIMS:

1. A light emitting device comprising a light emitting structure capable of emitting primary light of a wavelength less than 480 nm and a luminescent screen comprising a phosphor of general formula  $(Sr_{1-a-b}Ca_bBa_cMg_dZn_e)Si_xN_yO_z:Eu_a$ , wherein  $0.002 \leq a \leq 0.2$ ,  $0.0 \leq b \leq 0.25$ ,  $0.0 \leq c \leq 0.25$ ,  $0.0 \leq d \leq 0.25$ ,  $0.0 \leq e \leq 0.25$ ,  $1.5 \leq x \leq 2.5$ ,  $1.5 \leq y \leq 2.5$  and  $1.5 < z < 2.5$ .
2. The light emitting device according to claim 1, wherein the light emitting structure capable of emitting primary light of a wavelength from 450 nm to 480 nm.
- 10 3. The light-emitting device according to claim 1, wherein the light emitting structure is a blue-emitting LED.
4. The light-emitting device according to claim 1, wherein the phosphor is comprised in a thin film layer.
- 15 5. The light emitting device according to claim 1, wherein the luminescent screen comprises a green phosphor of general formula  $(Sr_{1-a-b}Ca_bBa_cMg_dZn_e)Si_xN_yO_z:Eu_a$ , wherein  $0.002 \leq a \leq 0.2$ ,  $0.0 \leq b \leq 0.25$ ,  $0.0 \leq c \leq 0.25$ ,  $0.0 \leq d \leq 0.25$ ,  $0.0 \leq e \leq 0.25$ ,  $1.5 \leq x \leq 2.5$ ,  $1.5 \leq y \leq 2.5$  and  $1.5 < z < 2.5$  and a red phosphor.

6. The light emitting device according to claim 5, wherein the red phosphor is selected from the group of  $(Sr_{1-x-y}Ba_xCa_y)S:Eu$  wherein  $0 \leq x < 1$  and  $0 \leq y < 1$ ;  
 $CaS:Ce,Cl$ ;  
 $Li_2SrSiO_4:Eu$ ;  $(Sr_{1-x}Ca_x)SiO_4:Eu$  wherein  $0 \leq x < 1$ ;  $(Y_{1-x}Gd_x)_3(Al_{1-y}Ga_y)_5O_{12}:Ce$  wherein  
5  $0 \leq x < 1$  and  $0 \leq y < 1$  and  $(Sr_{1-x-y}Ba_xCa_y)_2Si_5N_8:Eu$  wherein  $0 \leq x < 1$  and  $0 \leq y < 1$ .

7. The light-emitting device according to claim 1, wherein the device is a lamp.

10 8. A luminescent screen comprising a phosphor of general formula  $(Sr_{1-a-b}Ca_bBa_cMg_dZn_e)Si_xN_yO_z:Eu_a$ , wherein  $0.002 \leq a \leq 0.2$ ,  $0.0 \leq b \leq 0.25$ ,  $0.0 \leq c \leq 0.25$ ,  $0.0 \leq d \leq 0.25$ ,  $0.0 \leq e \leq 0.25$ ,  $1.5 \leq x \leq 2.5$ ,  $1.5 \leq y \leq 2.5$  and  $1.5 < z < 2.5$ .

9. A phosphor of general formula  $(Sr_{1-a-b}Ca_bBa_cMg_dZn_e)Si_xN_yO_z:Eu_a$ ,  
15 wherein  $0.002 \leq a \leq 0.2$ ,  $0.0 \leq b \leq 0.25$ ,  $0.0 \leq c \leq 0.25$ ,  $0.0 \leq d \leq 0.25$ ,  $0.0 \leq e \leq 0.25$ ,  
 $1.5 \leq x \leq 2.5$ ,  $1.5 \leq y \leq 2.5$  and  $1.5 < z < 2.5$ .

10. A phosphor according to claim 9,  
wherein  $1.9 \leq x \leq 2.1$ ,  $1.9 \leq y \leq 2.1$  and  $1.9 < z < 2.1$ .

20 11. A phosphor according to claim 9,  
of general formula  $Sr_{1-a}Si_2N_2O_2:Eu_a$